

2011

RT-48 & BS-48 Battery



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## **RT-48 TRANSMITTER AND BS-48 BATTERY**

### **A. INTRODUCTION**

The RT-48 is a miniature, crystal controlled transmitter with an operating range of 4 to 16 megahertz in two bands. It can be used for either high speed or manual morse code operation. The BS-48 battery provides power for the transmitter. The battery can be recharged from the AC mains.

### **B. TESTING THE BS-48 BATTERY**

1. Connect the battery to the transmitter by inserting the Battery Cable (16) into the PWR socket (11) on the transmitter. Press the BAT. TEST button (14) on the transmitter. A higher than mid-scale reading on meter (5) will show that the battery has sufficient power to operate the transmitter for a normal contact. A reading lower than mid-scale indicates the battery should be recharged. The only time the meter reading will give a true indication of the power remaining in the battery is immediately after the battery has operated the transmitter for one minute or more.

2. The battery should be connected to the transmitter only when testing the battery, tuning the transmitter, or when actually making a transmission. It should never be connected to the transmitter at any other time as battery power will be wasted.

### **C. CHARGING THE BS-48 BATTERY**

1. Connect the Battery Cable (16) to the Mains Plug (17). Connect the mains plug to an AC mains outlet. NEVER PLUG THE MAINS PLUG INTO AN OUTLET UNLESS THE BATTERY IS CONNECTED. The small light (15) on top of the battery will glow when the battery is being charged. If the light does not glow, check for bad connections. Also, check the AC mains by connecting a lamp or other electrical appliance into the outlet and observing performance.

2. The rate at which the battery will charge depends on the mains voltage. Times are given for 25%, 50% and 100% charges:

<u>MAINS VOLTAGE</u>	<u>25% CHARGE</u>	<u>50% CHARGE</u>	<u>100% CHARGE</u>
80 Volts	14 Hours	27 Hours	54 Hours
100	11	22	44
120	9	18	36
140	8	16	31
160	7	14	27
180	6	12	24
200	6	11	22
220	5	10	20
240	5	9	18

3. A fully charged battery that has been stored for a month or more should be given a 25% charge to bring it up to full strength. A fully charged battery that has been used for five minutes or less should be given a 50% charge. A battery that is fully charged will operate the transmitter for approximately 27 minutes.

4. Generally, if charging from 220 volts, charge the battery 40 minutes for each minute of operation; if charging from 110 volts, charge 80 minutes for each minute of operation.

#### D. PREPARATION FOR USE

1. Insert the crystal for the desired frequency into the transmitter socket marked XTAL (10).

2. Connect the transmit antenna by sliding the ANT connector (7) to the left and insert the antenna wire. If the antenna has two lead wires, connect the second wire in the same manner to the GND connector (6). If the antenna has only a single lead wire, an earth ground should be connected to the GND connector.

3. Set the two position Band Selector (1) to the frequency range that includes the desired crystal frequency. In the left (BLUE) position, the transmitter will operate in the 4 to 8 MHz range. In the right (RED) position, the transmitter will operate in the 8 to 16 MHz range. The RT/B-48A, a similar transmitter, covers a range of 3 to 12 MHz in two bands; band one 3 to 6 MHz and band two 6 to 12 MHz.

4. Set the DRIVER Tuning Control (2) and FINAL Tuning Control (3) to the approximate transmitting frequency in megahertz. Frequencies from 4 to 8 MHz are printed on the left (BLUE) side of each control and are set opposite the index marker at the left of the dial. Frequencies from 8 to 16 MHz are printed on the right (RED) side of each control and are set opposite the index marker at the right of the dial.

5. Set the Antenna Load Switch (4) so the black dot on the switch is pointing to the numeral 1 on the transmitter case.

#### E. TUNING THE TRANSMITTER

1. The following instructions apply when the transmitter is used with common types of antennas such as a single wire or dipole:

(a) After the transmitter has been preset as explained in para D, connect the Battery Cable to the transmitter PWR socket.

(b) Press the TUNE button (13) and adjust the DRIVER Tuning Control for a MAXIMUM indication on the Final Current Meter (5).

(c) Press the TUNE button and adjust the FINAL Tuning Control for a MINIMUM indication on the Final Current Meter.

(d) Press the TUNE button and adjust the Antenna Load Switch for a MAXIMUM indication on the Output Meter (8) and MAXIMUM brilliance of the Antenna Current Lamp (9).

(e) As a final adjustment, with the TUNE button pressed, readjust the FINAL Tuning Control for MAXIMUM brilliance of the Antenna Current Lamp. The transmitter is now tuned and ready for operation.

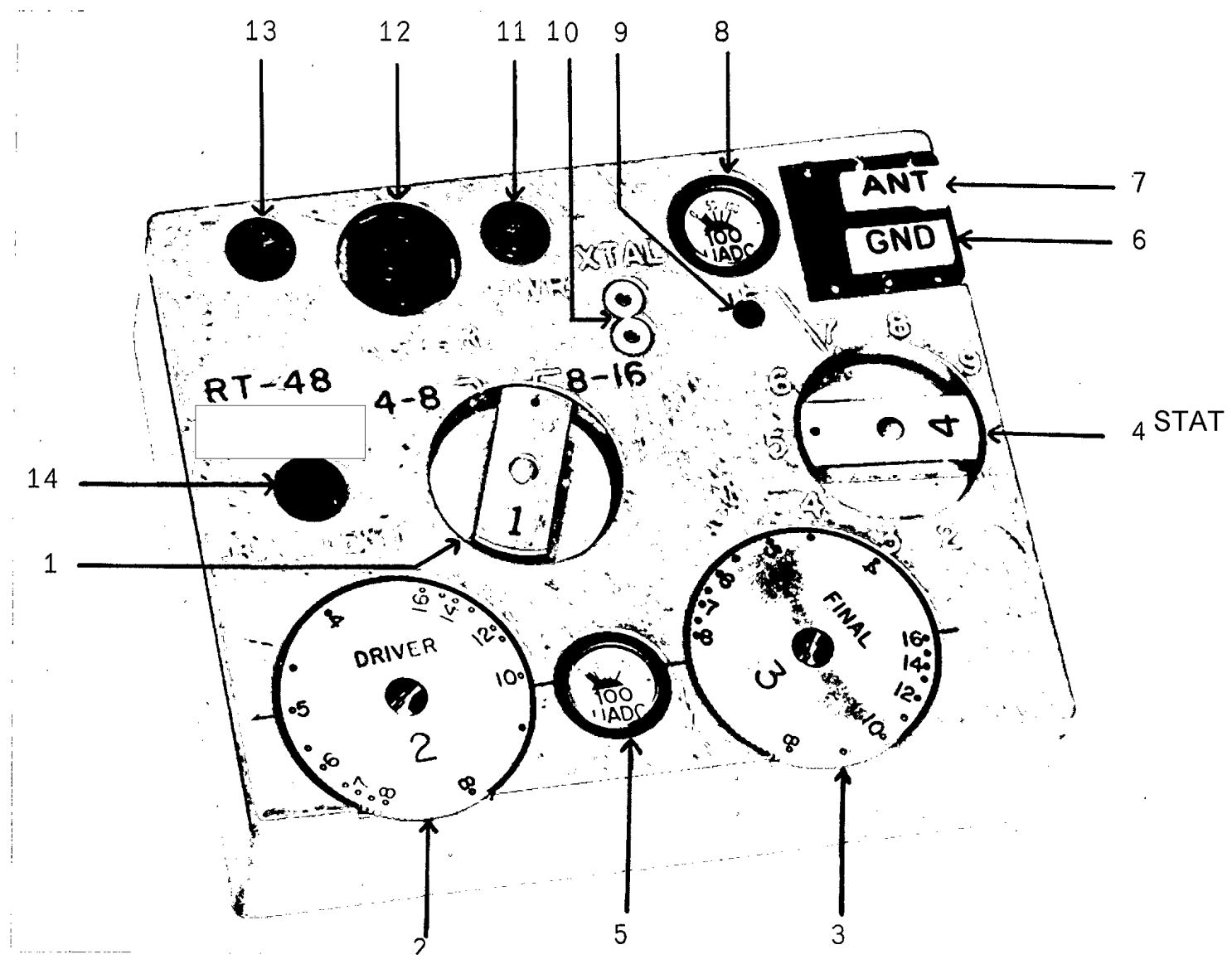
2. The following instructions apply when the transmitter is used with the AN-58 Antenna:

(a) Preset the transmitter as explained in para D. Insert the AN-58 Antenna Pin Connectors into the ANT and GND terminals of the transmitter. When using the AN-58 Antenna, the Antenna Load Switch must be preset to the numeral 2 and remain in that position.

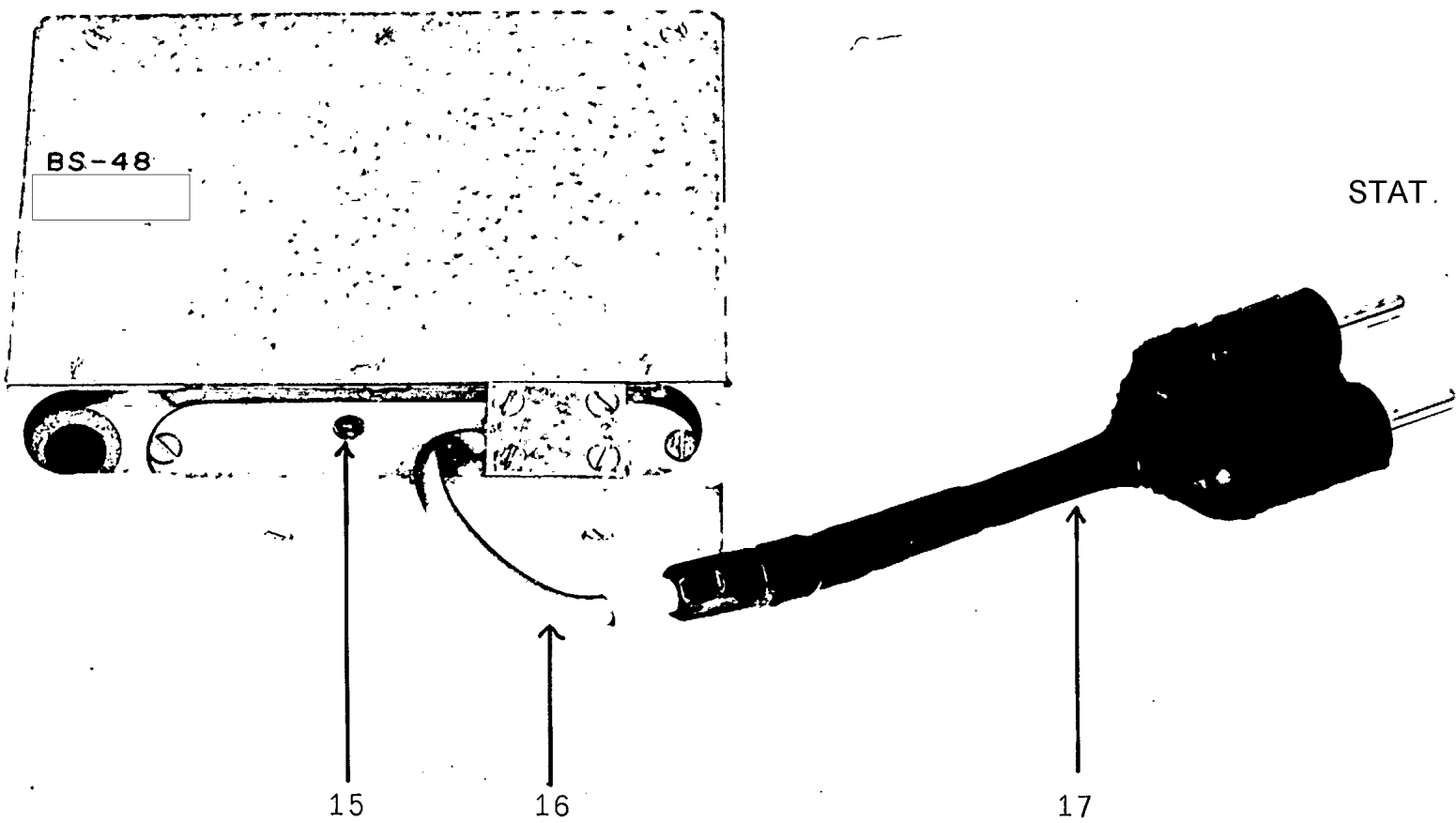
(b) Press the TUNE button and adjust the DRIVER Tuning Control for a MAXIMUM indication on the Final Current Meter.

(c) Press the TUNE button and adjust the FINAL Tuning Control for a MINIMUM indication on the Final Current Meter.

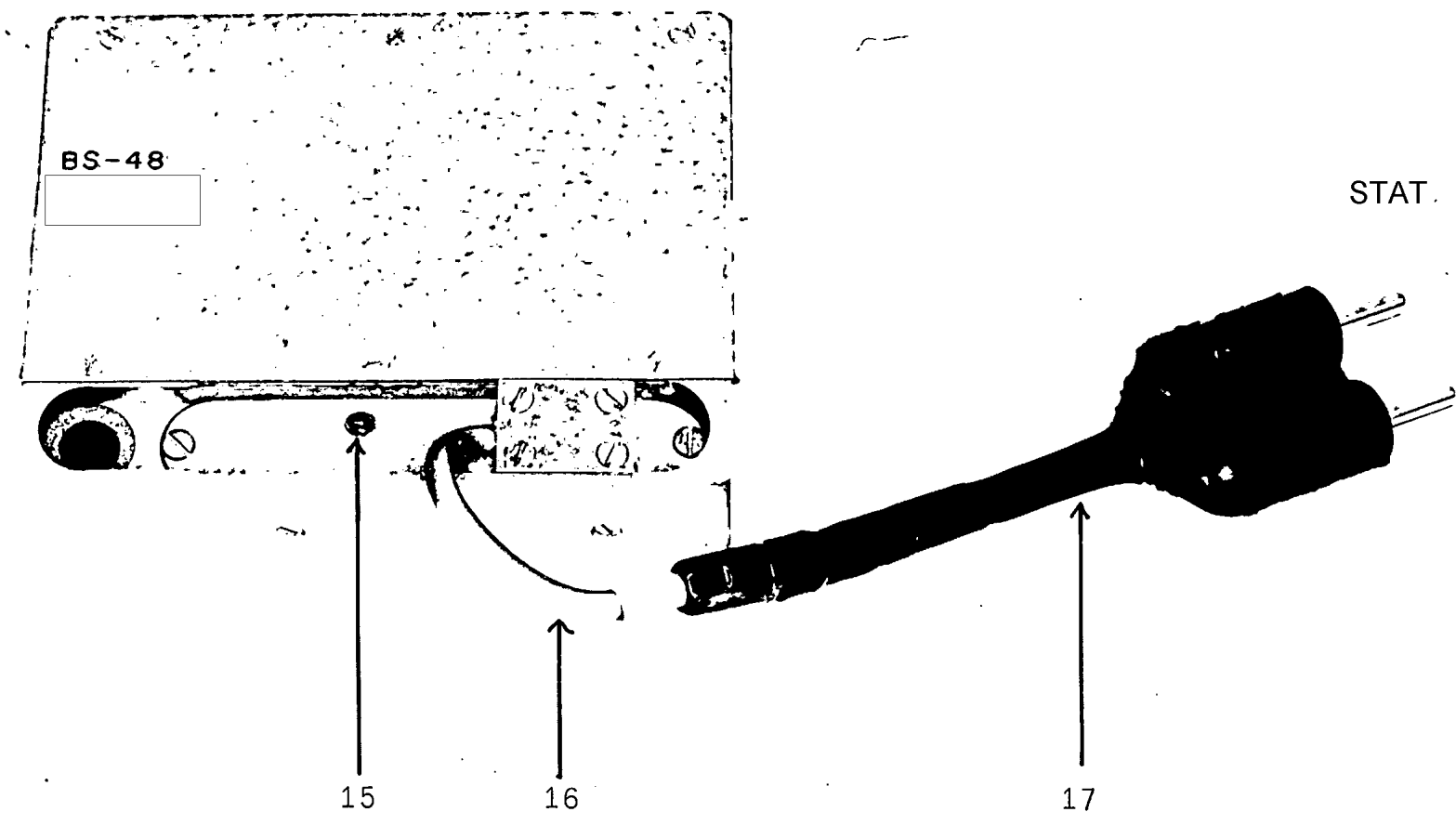
(d) Press the TUNE button and adjust the AN-58 tuning control (on the antenna tuning box) for MAXIMUM brilliance of the AN-58 neon lamp. The precise point of MAXIMUM brilliance can best be found by adjusting for MAXIMUM fullness of the neon glow. At this point, when the TUNE button is pressed, there should be MAXIMUM brilliance on both the AN-58 neon lamp and on the transmitter Antenna Current Lamp. If not, carefully readjust the transmitter FINAL Tuning Control and the AN-58 tuning control for MAXIMUM brilliance on the AN-58 neon lamp. The transmitter and AN-58 Antenna are now tuned and ready for operation.



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|--------------------------|-------------------------|
| 1. Band Selector         | 8. Output Meter         |
| 2. DRIVER Tuning Control | 9. Antenna Current Lamp |
| 3. FINAL Tuning Control  | 10. XTAL Socket         |
| 4. Antenna Load Switch   | 11. PWR Socket          |
| 5. Final Current Meter   | 12. KEYER Socket        |
| 6. GND Connector         | 13. TUNE Button         |
| 7. ANT Connector         | 14. BAT. TEST Button    |



- 15. Charge Indicator Light
- 16. Battery Cable
- 17. Main Plug



- 15. Charge Indicator Light
- 16. Battery Cable
- 17. Main Plug